

COWPEAS FOR KANSAS.

W. R. HILDRETH.

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## COWPEAS FOR KANSAS.

### The Cowpea as a Legume.

The great need of Kansas is more leguminous crops as cowpeas, soy beans, clover and alfalfa. The superior value of these crops lies principally in their 'nitrogen gathering' power. On their roots are found tubercles. These are caused by bacteria which possess the power to gather free nitrogen from the air and prepare it for the use of the plant. In this way great stores of the most valuable as well as the most deficient of plant foods are obtained. The tubercles on the roots of cowpeas are larger than on the roots of any other legume, besides they form in Kansas soils without inoculation which is not the case with the soy bean.

Another value of legumes is their high protein content. This constituent is very deficient in most Kansas feeds, as corn, prairie hay and the like, so in order to supply the need the feeder must buy high priced nitrogenous foods or raise leguminous crops. The cowpea is equal to alfalfa in protein content.

The power of legumes to enrich the soil by adding nitrogen also adds to their value. Even when the hay crop is removed about one half of the nitrogen content of the plant remains in the roots and wasted leaves. The cow pea is superior to the soy bean as a fertilizer, and has the advantage of clover and alfalfa in being produced in one year or as a second crop.

Since legumes have an extensive and deep root system they act as nature's subsoiler. This deep root system enables the plant to bring plant food to the surface from a great depth, to loosen and aerate the soil and to withstand drought. The roots of the cowpea



are larger and more branched than those of the soy bean. The cowpea also withstands drought better as I saw demonstrated during the excessive drought of last season. We grew, in Labette County, the Whip-poor-will cowpea and the Early Yellow soy bean under similar conditions, being grown side by side. The cowpea leaves maintained a rich dark color during the drought while at least half of the soy bean leaves turned yellow and fell off. At the Kansas Experiment Station the same conditions prevailed. With them the cowpea stood the drought better than either the soy bean or Kafir-corn.

**Cowpeas in the South:**-Cowpeas have been grown for about one hundred and fifty years in the southern states, and to-day they form the principal hay crop. They are also used extensively for enriching their infertile soil. The cowpea is naturally adapted to that climate and yields heavily there. A hay crop of from two to five tons per acre is not uncommon with them. They often use cottonseed meal and cowpea hay for fattening cattle. The Arkansas Experiment Station fed such a ration to steers which made the excellent gains of three pounds per day.

**Cowpeas in the North:**-It has only been in recent years that efforts have been put forward to grow cowpeas in the northern states. These efforts, however, have not been in vain, for there are numerous successful growers and staunch friends of the cow pea in the north. The Wisconsin Experiment Station planted a plat of cow peas in 1887. By the middle of August it had made a luxuriant growth covering the ground with a dense foliage eighteen inches high. It was cut on the 21st of August and yielded at the rate of twenty-one tons of green feed per acre.

Mrs. George A. Downs has been growing cowpeas in Vermont with considerable success for several years. The variety known as



Warren's Extra Early has succeeded best with her.

Hans Buschbauer of Jefferson County, Wisconsin reports that he has grown cowpeas with success for three consecutive years. They yield an abundance of both vines and peas. He says that the Whip-poor-will cowpea planted about June 1st ripened about September 1st.

At the Missouri Experiment Station cowpeas were raised on naturally poor upland clay soil. The yield was 1430 pounds or about three quarters of a ton per acre of dry cow pea hay. They report that the soil on which these were grown was almost too poor to raise other crops.

Successful Kansas Growers:-During the past four or five years the cow pea has been making its way into Kansas, especially into the southeastern portion. Some growers never fail to produce a profitable crop while others never succeed. Mr. A. B. Roller of Altamont, Labette County, Kansas has raised them with success since 1894. He says a yield of two tons of hay per acre is not uncommon with him. He raises them on rather light upland soil. Mr. E. C. Chase, of Merriam, Johnson County, has been growing the cow pea "off and on" since 1865. They produce an abundance of feed with him but are hard to handle and cure. He considers them of great value as a soiling crop for cows during the dry season of the year. Mr. S. S. Dickinson, of Larned, Pawnee County, Kansas raised a good crop of cow peas in 1899. The following year he failed to get a good stand which he thought was due to a too wet condition of the soil at time of planting. Last year the drought made the crop a failure. He expects to sow twenty acres in his orchard this year and pasture it with hogs. Mr. Edwin Taylor, the famous potato grower of the Kaw valley, has been growing the cowpea more or less for six or seven years. As to their yield he estimates them at about three



tons of hay per acre. He grows them chiefly for their effect upon his potato ground. He says that potatoes following cowpeas have never failed, within his observation, to yield better than where there was not such a succession.

Causes of Failures in Kansas:- The cowpea, like all other new crops, has met with many failures. One of the most common causes of failure is due to sowing before the ground is thoroughly warmed. The cowpea is a tropical plant and will not thrive under cool conditions. Sometimes their failure is due to planting in too wet a soil. Some try to raise cowpeas on the poorest soil they have and expect a good crop. As a result their expectations are not fulfilled. Since it is difficult to secure native grown seed, most growers have to buy southern grown seed. This throws another difficulty in the way of profitable crops of the cowpea. Many fail because they raise varieties unadapted to Kansas conditions.

### GROWING COWPEAS IN KANSAS.

Varieties,-There are many varieties of cowpeas which vary greatly in habit of growth, size and shape of pod, shape and color of seed and in season of maturity. Only the medium or early maturing varieties are adapted to Kansas climates.

The Whip-poor-will variety has proved the most successful in Kansas and is the one most generally grown here. It grows erect, is medium early and produces a good crop of both grain and vines. It retains its leaves well which makes it a good hay crop. The pods are seven or eight inches long and well filled with seed. The bean is medium sized, kidney shaped and spotted.

The Clay variety is later than the Whip-poor-will, runs more to vines and produces less seed. Planted June 1 at the Kansas Experiment Station last season it failed to ripen. In southern



Kansas, however, it will mature, and is better for winter pasture than the Whip-poor-will. Its vines are too long and tangling to raise for a hay crop.

Warren's Extre Early has been raised in south-east Kansas with good success. It is extra Early as its name signifies, and grows in bush form, producing much seed but few vines. It may be used to advantage as a catch crop.

Nine varieties were planted at the Kansas Experiment Station June 1, 1901 and made the following records to the time of blossoming and ripening:

	Blossomed.	Ripe.
Black - - - - -	-No blossoms.	
Black Eye - - - - -	-August 6	- Sept. 1.
Clay - - - - -	- August 12	-Did not ripen.
Granite Crowder - - - - -	-July 21	-August 20.
Iron Pea - - - - -	- July 30	-August 31.
Nigger - - - - -	- August 8	- August 30.
Two Crop - - - - -	- July 24	-August 25.
Unknown or Wonderful - - - - -	Did not mature.	
Whip-poor-will - - - - -	- August 2	- September 1.

Where to Obtain Seed:- The native grown seed is undoubtedly the best to use, yet it is often impossible to secure such since the Kansas growers seldom save more seed than they need for their own use. This is due to the difficulty in harvesting the seed. In southeast Kansas, where the cow pea is being most extensively raised, native seed may sometimes be secured from the growers direct or from the seed stores. Most of the seed for sale in the seed stores of Kansas City and St. Louis has been grown in the



south. The selling price of cowpeas is about two dollars per bushel.

**Time to Sow:-** As a rule cow peas should not be sown in Kansas soil before the first of June. If sown before the ground is thoroughly warmed or when the soil is too wet, the cowpeas are apt to rot, and even if they do come up they will not thrive well. Rather late sowing produces more seed and less vines. They are often sown with good results after a wheat or oat crop is removed or at the time of last planting of corn. They may be sown late in the season for a cover crop.

**Kind of Soil:-** Cowpeas will grow on the poorest of soil yet they do not thrive there. They produce the largest crops on good rich loam that is well drained.

**Preparation of Soil:-** Plow the soil deep and either give it time to settle or subsurface pack it before sowing. Put the surface in a fine mellow condition and free from weeds like a garden seed bed and then plant.

**Methods of Sowing:-** Perhaps the best method is to drill in rows about thirty inches apart with the seed two or three inches apart in the row. Many growers plant them with a corn planter doubling the rows. This method puts the rows rather close for cultivation. The cowpea is often sown broadcast. This method takes more seed than either of the above, and is more difficult to harvest for hay. The cowpeas should be covered from two to three inches deep.

**Cultivation:-** These sown in rows should receive shallow, level cultivation with a small-toothed cultivator. About two cultivations is all that would be necessary since the vines would then shade the ground.



Harvesting:- For hay the cowpea should be cut as soon as the pods are well formed and the earliest ones turning yellow. If cut later the leaves, which form the most valuable part of the feed, are apt to shatter off and be wasted. Cowpeas are most generally cut with a mower. It is impossible, however, for the mower to cut off all the vine. When sown in rows a soy bean harvester gives best results. Cowpeas that have been broadcasted are more difficult to handle than those sown in rows.

Curing and Storing:- There is great difficulty in curing cowpea hay since the large vines contain so much water. As a rule they can be cut one day, raked and cocked the next, and then left in the cock until cured. They should be handled as little as possible. If the cocks should get wet they should be turned carefully and not spread out, too much handling shatters off the leaves. After they are dry enough so that water cannot be squeezed out of the stems by twisting a bunch then they are ready to be put in a stack or hay mow.

Yield:- In the South the yield of cowpea hay is generally from two to five tons per acre. In the North the yield as a rule is not so great. Mr. A. B. Roller, one of the oldest growers in Labette County, claims that two tons per acre is not <sup>an</sup> uncommon yield on rather poor upland soil. Mr. T. T. Perry of Girard, Crawford County, claims to have raised about five tons per acre of dry cow pea hay. Many fail to secure more than one ton of hay per acre yet I believe when properly treated an average of two tons could be secured.

The yield of seed varies from six to twenty bushels per acre.

Harvesting of Seed:- The gathering of seed under present methods is very tedious and expensive. The pods are often picked



by hand, stored in barrels and flailed out in the winter. Sometimes the vines and all are run through a threshing machine. This method often cracks nearly half of the seed. If a thresher is used it should be run slowly and have in blank concaves.

Uses:- Perhaps the principal use of the cowpea is for hay. Under good treatment it will yield in Kansas from two to three tons of hay per acre equal in feeding value to alfalfa. It contains about 10.8% digestible protein, 38.6% carbohydrates and 1.1% fat. This shows that it is especially rich in protein which is the most valuable plant food. Feeding experiments have proven its high value as a food. The cowpea, however, will not supplant alfalfa for hay since the latter is easier handled and cured and produces a larger yield.

The cowpea is often sown for pasture. It may be sown between corn rows at last cultivation and then pastured with the stalks. It is sometimes sown with Kafir-corn or sorghum for either pasture or hay. This combination makes a valuable feed and at the same time makes it easier to cure the cowpea vines. Cowpeas, like alfalfa, should be pastured with care since there is danger from bloating.

The cowpea is recommended by some Kansas growers as a soiling crop for cows during the dry season of August and September. It is excellent for this since it retains green foliage even in the driest weather.

The cow pea is greatly needed in Kansas to rotate with other crops for the purpose of soil renovation and to increase the supply of nitrogen. In these regards, as stated above, it is superior to the soy bean and is better adapted than either clover or alfalfa since the latter two are perennials. It should be grown two years in succession on the same ground since the root tubercles

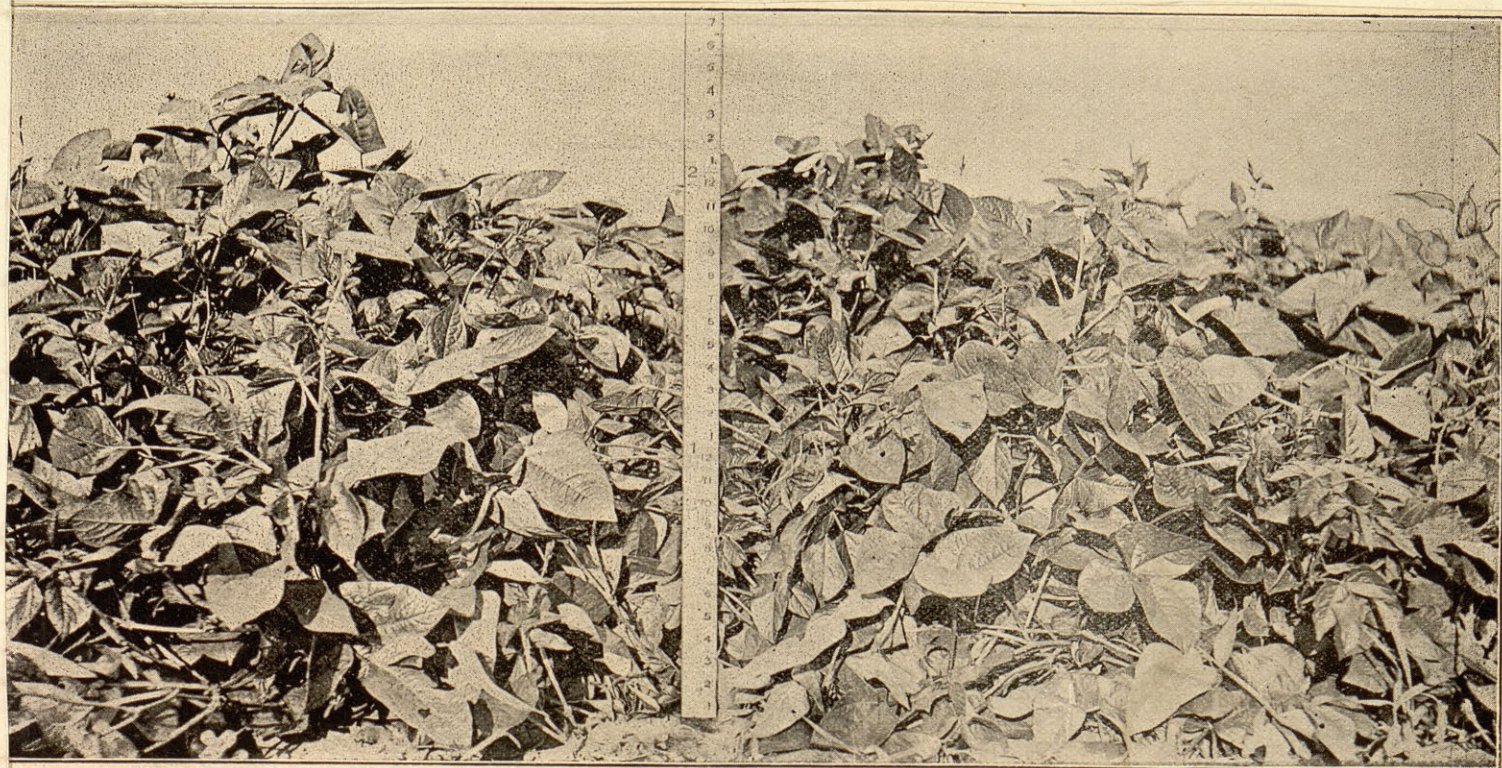


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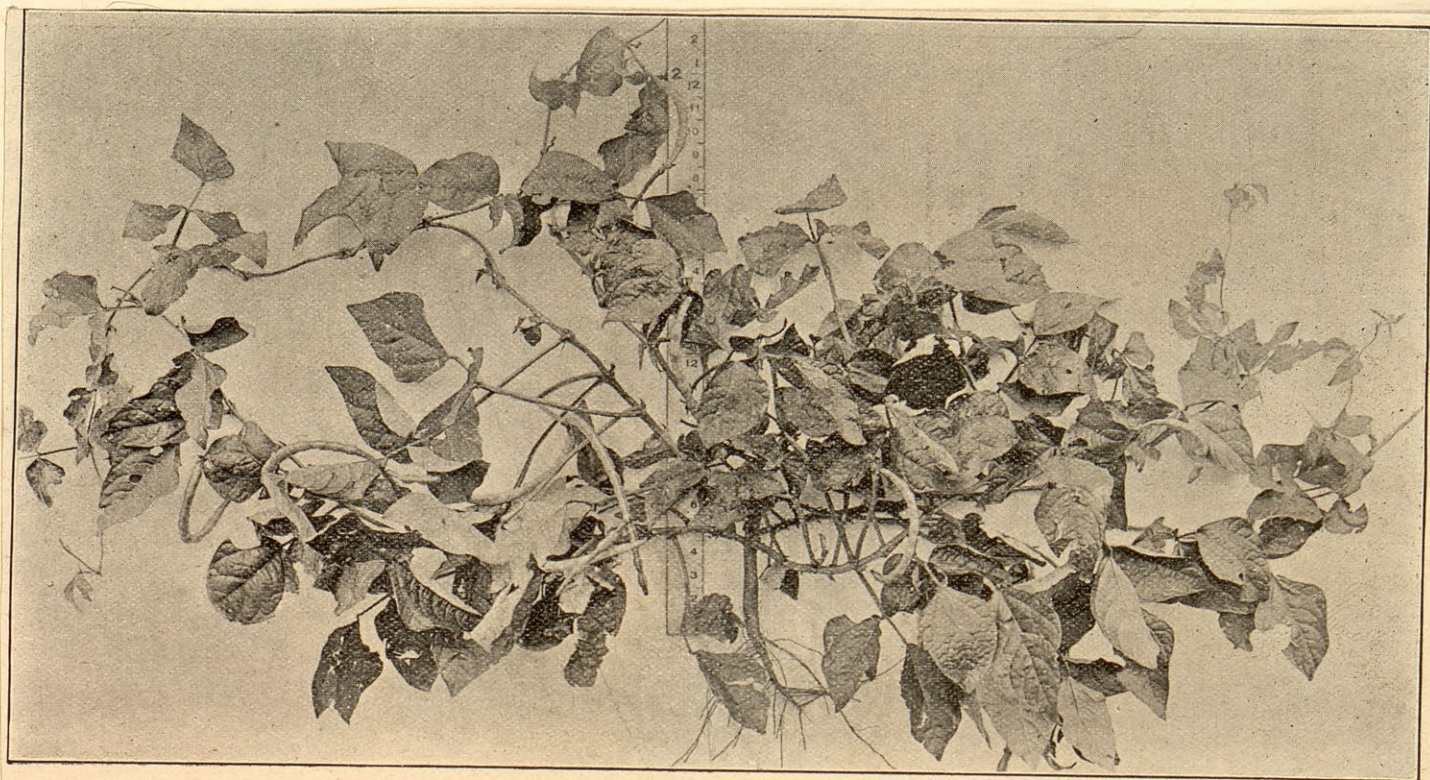
WHIP-POOR-WILL COW-PEA.





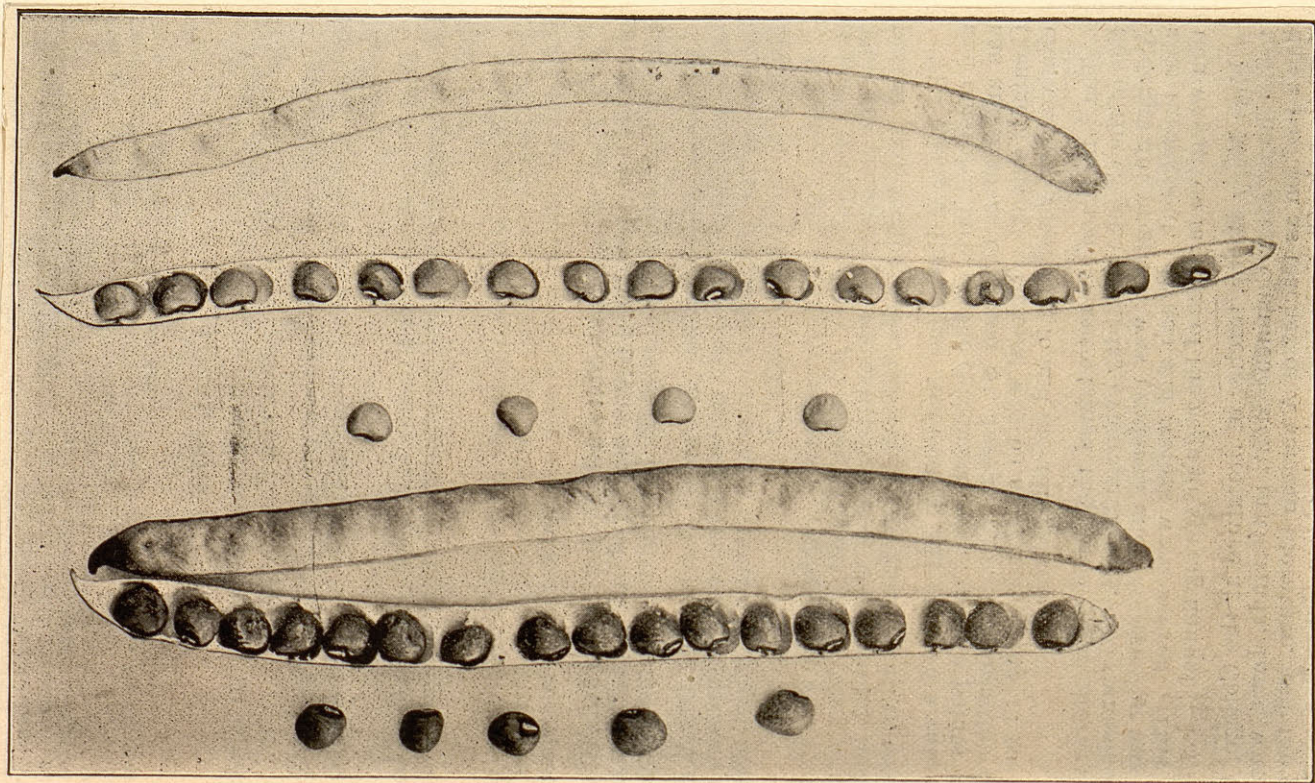
BLACKEYE COW-PEA.





NIGGER COW-PEA.





PODS AND SEEDS, COW-PEA.



become much thicker the second year and consequently more nitrogen is added to the soil.

Conclusion:- The cowpea has a valuable place as a Kansas crop. It may not equal alfalfa as a hay producer, yet it can be grown when the time is too short to raise alfalfa, and on soil unadapted to the latter. It should be raised for rotation purposes, for soiling, for a catch crop and to some extent for hay and pasture.